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PART LII DATA PROCESSING

Section 3 Equipment Technology

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ELECTROTECHNICAL VOCABULARY

PART LII DATA PROCESSING

Section 3 Equipment Technology

0. FOREWORD

0.1 This Indian Standard (Part LII/Sec 3) was adopted by the Indian Standards Institution on 15 September 1980, after the draft finalized by the Basic Standards on Electronics and Telecommunication Sectional Committee, in consultation with Electronic Business Machines and Calculators Sectional Committee had been approved by the Electronics and Telecommunication Division Council.

0.2 Electronic data processing is utilized for numerous exchanges and analysis of information of both intellectual and material nature. Application of electronic data processing becomes difficult, either because of the great variety of terms used in various fields to express the same concept, or because of the absence of or the imprecision of useful concepts. To overcome these barriers, this standard has been formulated.

0.3 This standard is one of the series of twenty Indian Standards on data processing vocabulary, constituting Part LII of the electrotechnical vocabulary, which deals with the main areas of data processing classified under the following heads:

Section 1 Fundamental terms
Section 2 Arithmetic and logic operations
Section 3 Equipment technology
Section 4 Organization of data
Section 5 Representation of data
Section 6 Preparation and handling of data
Section 7 Digital computer programming
Section 8 Control, input-output and arithmetic equipment
Section 9 Data media, storage and related equipment
Section 10 Data communications
Section 11 Operating techniques and facilities

Section 12 Information theory
Section 13 Analogue and hybrid computing
Section 14 Computer graphics and computer micrographics
Section 15 Programming languages
Section 16 Data bases
Section 17 Data structures
Section 18 Information systems, characteristics and development
Section 19 Reliability, maintenance and availability
Section 20 Control and integrity.

0.4 Prime importance has been given to simplicity and clarity of the definitions so that they may be understood by all. It may, therefore, be felt that some definitions do not cover all the cases and exceptions.

0.5 Assistance has been derived in formulating this standard from International Standard ISO 2382 'Data Processing—Vocabulary — Section 03.' Equipment Technology (Selected Terms), prepared by the International Organization for Standardization.

1. SCOPE

1.1 This standard (Part LII/Sec 3) covers terms related to equipment technology as used in data processing.

2. CIRCUITS AND SIGNALS

2.1 Trigger Circuit — A circuit has a number of stable states or unstable states, at least one being stable, and so designed that a desired transition can be initiated by the application of a suitable pulse.

2.2 Stable State — In a trigger circuit, a state in which the circuit remains until the application of a suitable pulse.

2.3 Unstable State/Metastable State/Quasistable State — In a trigger circuit, a state in which the circuit remains for a finite period of time at the end of which it returns to a stable state without the application of a pulse.

2.4 Bistable Trigger Circuit/Bistable Circuit/Flip-Flop/Bistable Trigger — A trigger circuit that has two stable states.

2.5 Monostable Trigger Circuit/Monostable Circuit/Flip-Flop — A trigger circuit that has one stable state and one unstable state.

2.6 Delay Element — A device that yields, after a given time interval, an output signal essentially similar to a previously introduced input signal.

2.7 Delay Line — A line or network designed to introduce a desired delay in the transmission of a signal.

2.8 Pulse/Impulse — A variation in the value of a magnitude, short in relation to the time schedule of interest, the final value being the same as the initial value.

2.9 Pulse Train/Pulse String — A series of pulses having similar characteristics.

2.10 Clock Signal/Clock Pulse — A periodic signal used for synchronization.

2.11 Signal Transformation/Signal Shaping — The action of modifying one or more characteristics of a signal, such as its maximum value, shape, or timing.

2.12 Signal Regeneration — Signal transformation that restores a signal, so that it conforms to its original specification.

2.13 Enabling Signal – A signal that permits the occurrence of an event.

2.14 Inhibiting Signal — A signal that prevents the occurrence of an event.

3. MODES OF OPERATION AND PROCESSING MODES

3.1 Sequential – Pertaining to the occurrence of events in time sequence, with no simultaneity or overlap.

3.2 Consecutive —Pertaining to the occurrence of two sequential events, without the intervention of any other such event.

3.3 Sequential Operation — A processing mode in which two or more operations are performed one after the other.

3.4 Serial — Pertaining to the sequential performance of two or more activities in a single device.

3.5 Concurrent —Pertaining to the occurrence of two or more activities within a given interval of time.

3.6 Concurrent Operation/Parallel Operation — A processing mode in which two or more operations are performed within a given interval of time.

3.7 Simultaneous — Pertaining to the occurrence of two or more events at the same instant of time.

3.8 Simultaneous Operation/Parallel Operation — A processing mode in which two or more events occur at the same instant of time.

3.9 Parallel Operation — A processing mode in which operations are performed either concurrently in a single device, or concurrently or simultaneously in two or more devices.

3.10 Multiprocessor — A computer in which two or more central processing units have access to a common main storage.

4. FUNCTIONAL DESIGN

4.1 Functional Design — The specification of the working relationships among the parts of a data processing system.

4.2 Logic Design — A functional design that uses formal methods of description, such as symbolic logic.

4.3 Logic Diagram — A graphic representation of a logic design.

4.4 Logic Symbol — A symbol that represents an operator, a function, or a functional relationship.

5. LOGIC DEVICES

5.1 Logic Devices — A device that performs logic operations.

5.2 Sequential Circuit — A logic device whose output values, at a given instant, depend upon its input values and internal state at that instant, and whose internal state depends upon the immediately preceding input values and the preceding internal state.

Note — A sequential circuit can assume a finite number of internal states and may, therefore, be regarded, from an abstract point of view, as a finite automation.

5.3 Combinational Circuit/Combinatorial Circuit — A logic device whose output values, at any given instant, depend only upon the input values at that time.

Note — A combination circuit is a special case of sequential circuit that does not have a storage capability.

5.4 Gate — A combinational circuit with only one output channel.

5.5 Logic Element/Switching Element — A device that performs an elementary logic operation.

5.6 NOT Element/NOT Gate — A logic element that performs the Boolean operation of negation.

5.7 NOT-IF-THEN Element/NOT-IF-THEN Gate — A logic element that performs the Boolean operation of exclusion.

5.8 AND Element/AND Gate — A logic element that performs the Boolean operation of conjunction.

5.9 EXCLUSIVE-OR Element/EXCLUSIVE-OR Gate — A logic element that performs the Boolean operation of non-equivalence.

5.10 (INCLUSIVE)-OR Element/(INCLUSIVE)-OR Gate — A logic element that performs the Boolean operation of disjunction.

5.11 NOR Element/NOT-OR Element/NOR Gate — A logic element that performs the Boolean operation of non-disjunction.

5.12 IF-AND-ONLY-IF Element/IF-AND-ONLY-IF Gate — A logic element that performs the Boolean operation of equivalence.

5.13 IF-THEN Element/IF-THEN Gate — A logic element that performs the Boolean operation of implication.

5.14 NAND Element/NOT-AND Element/NAND Gate — A logic element that performs the Boolean operation of non-conjunction.

5.15 Identity Element/Identity Gate — A logic element that performs an identity operation.

5.16 Threshold Element/Threshold Gate — A logic element that performs a threshold operation.

5.17 Majority Element/Majority Gate — A logic element that performs a majority operation.

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NOTE — This index has been prepared in accordance with IS : 1275-1976*. Index numbers are clause numbers.

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